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10/16/2003

Robert Urscheler

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THE DOW CHEMICAL COMPANY  
INTELLECTUAL PROPERTY SECTION, P. O. BOX 1967  
MIDLAND, MI 48641-1967

EXAMINER

BAREFORD, KATHERINE A

ART UNIT

PAPER NUMBER

1762

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

Application No.

10/691,890

Applicant(s)

URSCHELER ET AL.

Examiner

Katherine A. Bareford

Art Unit

1762

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 31 July 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-84 is/are pending in the application.
- 4a) Of the above claim(s) 28, 29, 51 and 52 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4, 6, 7, 9-22, 25, 26, 30, 31, 33-44, 47, 48, 50, 53-56, 59-61 and 64-84 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

*Claims 5, 8, 23, 24, 27, 32, 45, 46, 49, 57, 58, 62, 63 are canceled*

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 7/07.
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- ☐ Notice of Informal Patent Application
- ☐ Other: \_\_\_\_\_.

### DETAILED ACTION

1. The amendment of July 31, 2007 has been received and entered. With the entry of this amendment, claims 5, 8, 23, 24, 27, 32, 45, 46, 49, 57, 58, 62 and 63 have been canceled, claims 28-29 and 51-52 are withdrawn, and claims 1-4, 6-7, 9-22, 25, 26, 30, 31, 33-44, 47, 48, 50, 53-56, 59-61 and 64-84 (including new claims 81-84) are present for examination.

### *Priority*

2. In the specification, applicant indicates that this case is a continuation-in-part of 10/273,866 filed 10/17/02, which is a continuation-in-part of 10/257,172, filed 4/12/02. However, a review of 10/257,172 indicates that the application does not provide support for the independent claims of the present application as the first and second components capable of reacting of claim 1 and the at least one reactable component and time of reaction of claim 30 are not provided in 10/257,152. Therefore, the earliest effective date for the present application is no earlier than 10/17/02.

### *Claim Rejections - 35 USC § 112*

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 30, 31, 33-44, 47, 48, 50, 53, 59-61, 68-71 and 81-84 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

(A) Claim 30, lines 6-7, has been amended to provide contacting the curtain with the web substrate "in the substantial absence of an applied electrostatic field". New claim 81 also provides contacting the curtain with the web substrate "in the substantial absence of an applied electrostatic field at a line where the curtain contacts the substrate" and new claim 82, lines 9-10, also provides contacting the curtain with the web substrate "in the substantial absence of an applied electrostatic field". Applicant argues that support for this is found in the Examples of the specification. The Examiner has reviewed the Examples and the disclosure as originally filed, and disagrees. They make no mention of the use or non-use of an electrostatic field. While applicant can claim negative limitations if there is support found in the disclosure as originally filed, as discussed in MPEP 2173.05(i):

Any negative limitation or exclusionary proviso must have basis in the original disclosure. If alternative elements are positively recited in the specification, they may be explicitly excluded in the claims. See *In re Johnson*, 558 F.2d 1008, 1019, 194 USPQ 187, 196 (CCPA 1977) ("[the] specification, having described the whole, necessarily described the part remaining."). See also *Ex parte Grasselli*, 231 USPQ 393 (Bd. App. 1983),

aff'd mem., 738 F.2d 453 (Fed. Cir. 1984). The mere absence of a positive recitation is not basis for an exclusion. (emphasis added)

Here we simply have the absence of a positive recitation in the specification. This is not basis for exclusion and a negative limitation as claimed. Therefore, the claims contain new matter.

(B) In new claim 83, it is claimed that the process is conducted under conditions such that "the first and second components at least partially react with each other during the coating application process." Applicant refers to page 7, lines 10-16 of the specification as providing support for the claim. The Examiner has reviewed the Examples and the disclosure as originally filed, and disagrees. There is no mention of "partially reacting" during the coating application process. Therefore, the claim contains new matter.

The other dependent claims do not cure the defects of the claims from which they depend.

### *Claims*

5. The Examiner notes that new claim 82 provides in the preamble that a "method of producing a coated paper or paperboard, excluding photographic paper and pressure sensitive copying paper, comprising . . .". However, this is not a limitation on the claim as to what the substrate can be, because as wording the preamble does not recite limitations into the claim itself or is necessary to give, life, meaning, and vitality

to the claim, since in the body of the claim merely "a continuous web substrate" (line 9) is required, with no limitations as to what the substrate is. See MPEP 2111.02.

*Claim Rejections - 35 USC § 103*

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

8. Claims 1-4, 6, 9, 11-22, 25, 26, 30, 31, 33-44, 47, 48, 50, 53, 64-71, 73 and 75-81 are rejected under 35 U.S.C. 103(a) as being unpatentable over (A) Yokota (US 6,746,718) or (B) WO 01/76884 A1 (hereinafter '884) in view of Kustermann (US 6146690), Takahashi et al (US 5885659) and Clarke et al (US 6103313).

\*\* Yokota is a continuation of PCT/JP01/02497, which issued as WO 01/76884

A1. As a result, Yokota is understood to act as a translation for '884, and '884 is rejected for the same reasons as given for Yokota. \*\*

Yokota/'884 teaches a method of producing a coated substrate. Column 3, lines 10-40. The method includes forming a free flowing curtain. Column 2, lines 20-30 and column 17, lines 15-40. The curtain can be a composite multilayer curtain. Column 17, lines 15-40. The curtain has a first component and a second component capable of reacting with each other. Column 3, lines 20-40 and column 7, lines 1-55, for example. The curtain is contacted with a continuous web substrate. Column 17, lines 15-40.

Claim 2: the curtain can be multilayer. Column 17, lines 15-40. The curtain has at least two layers. Column 17, lines 15-40 and column 3, lines 20-40. One layer contains the first component. Column 3, lines 20-40 and column 7, lines 1-55. A second layer contains the second component. Column 3, lines 20-40 and column 7, lines 1-55.

Claim 3: an internal layer can be present between the layers comprising the first component and the layer comprising the second component. Column 3, lines 20-40 and column 7, lines 1-55.

Claims 4, 33: the reaction type can be an anionic-cationic-interaction. Column 7, lines 1-55.

Claim 6: the curtain can have at least one layer comprising a first and second component capable of reacting with each other. Column 13, line 45 through 14, line 10 (for heat printing).

Claims 9, 34: the reaction between the first and second components can occur when applied to the substrate, for example, Column 6, lines 10-35.

Claims 12, 35: a top layer to ensure printability can be provided. Column 14, lines 20-35.

Claims 13, 50: the substrate can have a weight of 60 g/m<sup>2</sup>. Column 17, lines 30-40.

Claims 16, 38: the curtain can be three layers. Column 17, lines 30-40.

Claims 17-18, 39-40: the curtain can have a layer with at least one pigment. Column 13, lines 15-30. The pigment can be talc, kaolin, calcium carbonate, etc. Column 13, lines 15-30.

Claims 19-20, 41-42: the curtain can have a layer with a binder. Column 12, lines 40-50. The binder can be polyvinyl alcohol, etc. column 12, lines 40-55.

Claims 21, 43: the curtain can have a layer with an optical brightening agent. Column 12, lines 30-40 (fluorescent brightener).

Claims 22, 44: the curtain can have a surfactant. Column 12, lines 25-35.

Claims 25, 47: the substrate can be a basepaper. Column 17, lines 30-35.

Claims 30-31: the curtain has first and second components capable of reacting. Column 3, lines 20-40 and column 7, lines 1-55. The components can begin reacting during coating and be completely reacted before the coating process is complete. Column 6, lines 20-30 (i.e. before the end of drying as part of the coating process). The



coating process is not described as requiring any electrostatic field. Column 15, lines 50-65, for example.

Claim 53: the curtain can contain a reactive component that reacts by external means, such as heat. Column 13, lines 40-65.

Claims 65, 69: the curtain can be formed with a slide die. Column 17, lines 15-25.

Claim 66, 67, 70, 71, 80: the curtain can contain polyethylene oxide in any layer. Column 13, lines 15-30.

Claim 80: The coating process is not described as requiring any electrostatic field. Column 15, lines 50-65, for example.

Yokota/'884 teaches all the features of these claims except (1) the cationic starch and anionic component (claim 11), (2) the dried weight (claims 14, 15, 36, 37), (3) the solids content (claims 1, 30, 80), (4) the not precoated or precalendered paper (claims 26, 48), (5) the epoxy functional and amine hardening agent (claim 73), (6) the web speed (claims 1, 39, 75-80), (7) the use of a slot die (claims 64, 68), (8) the specific absence of an electrostatic field (claims 30, 81). Yokota does teach that the components include a positively charged (cationic) compound and a negatively charged (anionic) compound. Column 7, lines 10-25. The coating can also contain starch. Column 12, lines 45-50. One of the compounds can be an amine. Column 7, lines 25-30. The coating can also contain epoxy. Column 12, lines 60-65. As to the dried weight, Yokota does teach various examples with varying composition amounts (see Example 5, column 16, line 45 through column 17, line 40, for example) with wet weights, and that these are dried. As

to the solids content, Yokota does teach various examples with varying composition amounts (see Example 5, column 16, line 45 through column 17, line 40, for example). A variety of different layers can be applied. Column 5, lines 5-35. Yokota teaches that a variety of different layer combinations can be applied.

Kustermann teaches that when curtain coating, it is well known to provide that the solids content of the curtain can be between 5 and 80 percent, preferably between 30 and 75%. Column 2, lines 50-60. Furthermore, the web speed can be greater than 600 m/min, preferably more than 1000 m/min. Column 3, lines 1-10. The applied coating weight can be desirably between 3 and 30 g/m<sup>2</sup>. column 2, lines 60-65.

Takahashi teaches a curtain coating process to be used with either a slot or slide die (that applies a multilayer curtain). Column 6, lines 45-60 and figures 1 and 4. Takahashi teaches that when performing such coating, a variety of coating materials can be used as the coating liquid regardless of solid content concentrations without having any restrictions as long as they are coating liquids capable of being applied by curtain coating. Column 7, lines 20-35. A variety of webs can be used, as well, including paper. Column 7, lines 35-40. Moreover, the coating speed can be 15-1500 m/min. Column 7, lines 40-45.

Clarke teaches that it is well known to provide high speed curtain coating using multilayer composites. Column 3, lines 55-68. Web speeds are shown over 1000 cm/sec (600 m/min). Figure 6 and column 7, lines 45-60. Clarke provides that speed control is based on conditions at the web and at the layer adjacent the receiving surface (that

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layer's viscosity, surface roughness of the substrate and creating an electrostatic field) without taking into account solid content. Column 3, line 60 through column 4, line 5. As to the further layers, the only condition that Clarke takes into account is the total flow rate per unit width of the curtain and the lowest density of the coating compositions. Column 5, lines 15-20 and claim 1. While Clarke shows the benefits of using an electrostatic field, Clarke indicates that good coatings can be achieved (with a narrower window of operating latitude) in the absence of an electric field at speeds up to and over 600 m/min. See column 7, line 40 through column 8, line 20 and figure 6.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to (1) and (5) modify Yokota/'884 to perform routine experimentation to optimize what positively charged and negatively charged compounds to use as suggested by the Examples of Yokota testing for optimal coating. As a result, the use of components suggested to be present such as starch, amines and epoxy materials would be tested for optimal viscosity increasing. (2) (3) It would further have been obvious to modify Yokota/'884 to perform routine experimentation to optimize the weight of the dried coating and solids content depending on the specific information recording materials desired as suggested by Kustermann and Takahashi in order to provide a desirable coating, given the variety of coating possibilities given by Yokota and the variety of materials that can be present and the teaching by Kustermann that solids content in the range of 30-75 % are desirable for curtain coating (which would include the claimed range of 45% or more) and that the coat weight can be 3-30

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g/m<sup>2</sup> and the further teaching of Takahashi that conventional solids content can be used for single or multilayer curtain coating as long as the material is capable of being curtain coated. (4) It would further have been obvious to modify Yokota/'884 in view of Kustermann and Takahashi to use paper that had not been precoated or precalendered with an expectation of desirable coating results, because Yokota/'884 and Takahashi teach to use paper in general, and untreated paper would be a well known material that would be a subset of paper that would be expected to work. (6) Moreover, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Yokota/'884 to optimize the web speed as taught by Kustermann, Takahashi and Clarke in order to provide desirable quick coating application, because Yokota/'884 teaches curtain coating various numbers of layers of coating and Kustermann teaches that a desirable web speed for curtain coating is over 600 m/min and preferably over 1000 m/min and Takahashi teaches that desirable web speed for curtain coating can reach 1500 m/min, for example, and describes that liquid can be used regardless of solid content concentrations as long as capable of being applied by curtain coating, and Clarke teaches that high speed curtain coating can be achieved based on the control of the conditions of the lowest layer, indicating that solid content of the layers would not affect the speeds reached, as long as the lowest layer had the optimum conditions. (7) Moreover, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Yokota/'884 in view of Kustermann, Takahashi and Clarke to use either a slot or slide die as taught by Takahashi in order to provide

desirable coating application, because Yokota/'884 teaches curtain coating various numbers of layers of coating and Takahashi teaches that either slot or slide dies can be desirably used for curtain coating. (8) It further would have been obvious to modify Yokota/'884 in view of Kustermann, Takahashi and Clarke to perform the coating in the absence of an electrostatic field with an expectation of desirable coating results, because Yokota/'884, Kustermann and Takahashi provide no indication that electrostatic fields are needed when performing curtain coating, even at high speeds, and Clarke specifically indicates that high speed curtain coating can be performed, even at 600 m/min without the presence of an electric field, and therefore, one of ordinary skill would expect that the speeds described by Kustermann and Takahashi can be used in the absence of an electric field.

9. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yokota or WO 01/76884 in view of Kustermann, Takahashi and Clarke as applied to claims 1-4, 6, 9, 11-22, 25, 26, 30, 31, 33-44, 47, 48, 50, 53, 64-71, 73 and 75-81 above, and further in view of Japan 11-192777 (hereinafter '777).

\*\* Yokota is a continuation of PCT/JP01/02497, which issued as WO 01/76884 A1. As a result, Yokota is understood to act as a translation for '884, and '884 is rejected for the same reasons as given for Yokota. \*\*

Yokota/'884 in view of Kustermann, Takahashi and Clarke teaches all the features of these claims except the specific coating materials.

'777 teaches that when performing multilayer coating that can be curtain coating, that when it is desirable to increase viscosity by reacting components in layers together, polyvinyl alcohol and borax can be used as the two components. See the abstract, paragraphs [0031] and [0044] – [0047].

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Yokota/'884 in view of Kustermann, Takahashi and Clarke to use reactive materials such as taught by '777 in order to provide desirable viscosity increase, because Yokota/'884 in view of Kustermann, Takahashi and Clarke teaches reactive material from different layers to increase viscosity and '777 teaches that two such components for such a process are polyvinyl alcohol and borax.

10. Claims 10 and 72 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yokota or WO 01/76884 in view of Kustermann, Takahashi and Clarke as applied to claims 1-4, 6, 9, 11-22, 25, 26, 30, 31, 33-44, 47, 48, 50, 53, 64-71, 73 and 75-81 above, and further in view of Hanaki et al (US 6060206).

\*\* Yokota is a continuation of PCT/JP01/02497, which issued as WO 01/76884 A1. As a result, Yokota is understood to act as a translation for '884, and '884 is rejected for the same reasons as given for Yokota. \*\*

Yokota/'884 in view of Kustermann, Takahashi and Clarke teaches all the features of these claims except the specific coating materials.

Hanaki teaches that when forming information recording materials, a protection layer can desirably be provided which contains materials such as starches and polyvinyl alcohol and that this layer can desirably be cross-linked with dialdehyde or borax.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Yokota/'884 in view of Kustermann, Takahashi and Clarke to use reactive materials such as taught by Hanaki in order to provide desirable viscosity increase, because Yokota/'884 in view of Kustermann, Takahashi and Clarke teaches reacting material from different layers to increase viscosity and '777 teaches that two such component combinations for such a process are polyvinyl alcohol and borax or starch and dialdehyde.

11. Claim 74 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yokota or WO 01/76884 in view of Kustermann, Takahashi and Clarke as applied to claims 1-4, 6, 9, 11-22, 25, 26, 30, 31, 33-44, 47, 48, 50, 53, 64-71, 73 and 75-81 above, and further in view of Asano et al (US 6335085).

\*\* Yokota is a continuation of PCT/JP01/02497, which issued as WO 01/76884 A1. As a result, Yokota is understood to act as a translation for '884, and '884 is rejected for the same reasons as given for Yokota. \*\*

Yokota/'884 in view of Kustermann, Takahashi and Clarke teaches all the features of these claims except the specific coating materials.

Asano teaches that when forming information recording materials, coatings such as polyurethane coatings can be formed by reacting polyisocyanate compositions and polyol compounds. Column 7, lines 10-20.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Yokota/'884 in view of Kustermann, Takahashi and Clarke to use reactive materials such as taught by Asano in order to provide desirable viscosity increase, because Yokota/'884 in view of Kustermann, Takahashi and Clarke teaches reactive material from different layers to increase viscosity and Asano teaches two reactive materials that form desirable compounds for information recording materials.

12. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yokota or WO 01/76884 in view of Kustermann, Takahashi and Clarke as applied to claims 1-4, 6, 9, 11-22, 25, 26, 30, 31, 33-44, 47, 48, 50, 53, 64-71, 73 and 75-81 above, and further in view of Sakagami et al (US 6214416).

\*\* Yokota is a continuation of PCT/JP01/02497; which issued as WO 01/76884 A1. As a result, Yokota is understood to act as a translation for '884, and '884 is rejected for the same reasons as given for Yokota. \*\*

Yokota/'884 in view of Kustermann, Takahashi and Clarke teaches all the features of these claims except the specific coating materials.



Sakagami teaches that when forming coating materials to absorb UV rays for surfaces such as paper and film, coatings such as epoxy resins can be formed by reacting polyglycidyl esters with amino silanes. Column 12, lines 50-65, column 1, lines 5-10, column 2, lines 40-60 and column 20, lines 5-15. The coating can be applied by various coating methods such as flow coating. Column 19, lines 60-65.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Yokota/'884 in view of Kustermann, Takahashi and Clarke to use reactive materials such as taught by Sakagami in order to provide UV protection layers, because Yokota/'884 in view of Kustermann, Takahashi and Clarke teaches reactive materials used in coating and Sakagami teaches two reactive materials that form desirable compounds for UV protection of articles.

13. Claims 54-56 and 59-61 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yokota or WO 01/76884 in view of Kustermann, Takahashi and Clarke as applied to claims 1-4, 6, 9, 11-22, 25, 26, 30, 31, 33-44, 47, 48, 50, 53, 64-71, 73 and 75-81 above, and further in view of either Schweizer Article (Premetered Coating Processes: Advantages and Applications) (as provided by applicant) or Hughes (US 3508947).

\*\* Yokota is a continuation of PCT/JP01/02497, which issued as WO 01/76884  
A1. As a result, Yokota is understood to act as a translation for '884, and '884 is rejected for the same reasons as given for Yokota. \*\*

Yokota/'884 in view of Kustermann, Takahashi and Clarke teaches all the features of these claims except the number of coating layers.

Schweizer Article teaches that when performing curtain coating it is well known to apply coatings at speed up to 30 m/s (1800 m/min) and with layer numbers up to over 10. See Table 1. The article also teaches that that both slot dies and slide dies are well known forms of curtain coating. See figure 1.

Hughes teaches that when performing multilayer curtain coating, it is well known to provide 10 or more individual layers. Column 14, lines 65-75 and figure 1.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Yokota/'884 in view of Kustermann, Takahashi and Clarke to optimize the number of layers applied to up to 10 or more as suggested by Schweizer Article or Hughes in order to provide a desirable number of applied materials on the web, because Yokota/'884 in view of Kustermann, Takahashi and Clarke teaches curtain coating various numbers of layers of material on the web and Schweizer Article and Hughes both teach that when multilayer curtain coating, it is well known that up to 10 or more layers can be applied.

14. Claims <sup>84</sup>82-~~83~~ are rejected under 35 U.S.C. 103(a) as being unpatentable over Yokota or WO 01/76884 in view of Kustermann, Takahashi and Clarke as applied to claims 1-4, 6, 9, 11-22, 25, 26, 30, 31, 33-44, 47, 48, 50, 53, 64-71, 73 and 75-81 above, and further in view of Japan 2000-153214 (hereinafter '214).

\*\* Yokota is a continuation of PCT/JP01/02497, which issued as WO 01/76884

A1. As a result, Yokota is understood to act as a translation for '884, and '884 is rejected for the same reasons as given for Yokota. \*\*

Yokota/'884 in view of Kustermann, Takahashi and Clarke teaches all the features of these claims except providing the reactable components in one layer that are mixed together before the curtain head (claim 82), the reaction with each other (claim 83) and the use of the inline mixer (claim 84). As discussed above, Yokota/'884 does teach that the coating layers can contain various additives.

'214 teaches performing multilayer curtain coating. Abstract and figure 1. Material such as hardener, which would conventionally react with other material in the layer to harden the coating, can be added to a layer material prior to the components passing through the curtain coater head. Figure 7, abstract, and paragraphs [0046] and [0060]. These first and second components can pass through an inline mixer prior to passing through the coating head. Paragraph [0060] (the static mixer).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Yokota/'884 in view of Kustermann, Takahashi and Clarke to use reactive materials in a single layer and to mix the materials (such as coating/hardener) before coating <sup>or reaching the coating head</sup> in an inline mixer in order to provide desirably hardened layers, because Yokota/'884 in view of Kustermann, Takahashi and Clarke teaches materials used in coating multilayers and with additives and '214 teaches that when curtain coating it is desirable to use reactive materials in a single layer and to mix

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the materials (such as coating/hardener) before coating<sup>or reaching the coating head</sup> in an inline mixer in order to provide desirably hardened layers. It would further have been obvious that these components would at least partially react during the coating application process, as the hardener would start hardening when added, which is why it is added right before coating.

### *Response to Arguments*

15. Applicant's arguments filed July 31, 2007 have been fully considered but they are not persuasive.

As to the 35 USC 103 rejections to the claims, applicant first provides a discussion of the various references, and argues that Takahashi does not teach that there are no limits to curtain coating, and that the Examiner appears to be reading Takahashi as saying that any material, regardless of solids, can be applied successfully by curtain coating, regardless of the coating conditions, and that this is incorrect as Takahashi recognizes that there are limits to the coating window depending on the coating material that is being applied, noting ~~a~~ column 1, line 27<sup>indicating</sup> that coating speed is dependent on coating conditions. Applicant also argues that Takahashi is concerned with a catch<sup>catch</sup> patch, not web speed or solid content, also noting the previous Rule 132 declaration by Dr. Bauer. As well, ~~as to~~ the applicant argues that as to the solids of Yokota, silence of a reference is not a generic teaching that there are no limits to a certain aspect of technology, and the fact that Yokota has no generic teaching regarding solids does not

reasonably suggest that a high solids content could be employed in the process of Yokota. The Examiner disagrees with applicant's position as described. As to the solids content used, the Examiner has not stated that Yokota/'884, in the absence of teaching of specific solids content, on its own provides the suggestion of using the claimed solids content. Rather, the Examiner has cited Yokota/'884 in combination with Kustermann and Takahashi as providing the suggestion to use solid content in the claimed range. Kustermann specifically provides that a solids content overlapping the claimed solids content is known to be used in a curtain coating layer, and Takahashi teaches that when using a described curtain coating process a variety of coating materials can be used "regardless of solid content concentrations without having any restrictions so long as they are coating liquids capable of being applied by curtain coating" (column 7, lines 25-35) and shows the use of a multilayer curtain in the process. Thus, the Examiner is not taking the position that Takahashi is saying that any liquid regardless of solids content can be applied, but that it specifically provides that liquids known to be capable of curtain coating can be applied regardless of solid content. Here, Kustermann, specifically shows a solid content range known to be acceptable. As discussed in MPEP 2144.05, "[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation." In *re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955) and overlapping ranges disclosed by the prior art provide a prima facie case of obviousness. Moreover, as to the web speed used, the Examiner has provided Yokota/'884 in view of Kustermann,

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va Takahashi and Clarke as providing the suggestion to optimize the web speed <sup>in the</sup> ~~into the~~ <sup>^</sup> ranges claimed, as discussed in the rejection above, with Kustermann, Takahashi, and Clarke all demonstrating the use of high speed curtain coating, with Kustermann using solid content percentages overlapping that claimed, Takahashi indicating that his coating can be used occurring "regardless of solid content concentrations without having any restrictions so long as they are coating liquids capable of being applied by curtain coating" (column 7, lines 25-35), and Clarke indicating features that control achieving high speed curtain coating that do not include solids content. The Examiner is not taking the position that curtain coating can be done at any web speed for any material, rather that the combination of references provides the suggestion of using the claimed solids content at the claimed speeds. This is not refuted by the previous declaration by Dr. Bauer as discussed in the Feb. 21, 2007 Office Action.

va Applicant goes on to argue, see pages 17-19 of the amendment, that applicant understands the rationale behind the rejection to be that because one can find various elements of the invention dispersed in the prior art, one would have been motivated to combine them as claimed via routine experimentation, and that this is incorrect. <sup>The Examiner disagrees.</sup> ~~The~~ Rejection as discussed in the rejection above, and the paragraph above, is based on optimizing overlapping ranges provided by the prior art as beneficial conditions. It is well settled, as discussed in the paragraph above, that this provides a prima facie case of obviousness. The combination of the references is clearly suggested, as opposed to applicant's arguments at pages 18-19, for the reasons given the rejection above. The

Examiner notes that Yokata/'884 provides no specific teaching as to solid content or speed limitations, but the cited prior art shows what would desirably be used in the art.

As to applicant's arguments regarding Clarke not being projectable onto the current conditions, page 19, applicant's attorney has made arguments regarding what is known in the art, however, no showing as to this issue is made. As discussed in MPEP 2145,

The arguments of counsel cannot take the place of evidence in the record. In re Schulze, 346 F.2d 600, 602, 145 USPQ 716, 718 (CCPA 1965); In re Geisler, 116 F.3d 1465, 43

USPQ2d 1362 (Fed. Cir. 1997) ("An assertion of what seems to follow from common experience is just attorney argument and not the kind of factual evidence that is

required to rebut a prima facie case of obviousness."). Moreover, it is not Clarke alone that is used, but Clarke in combination with the other references, which discuss the use

of higher solids materials. As to applicant's arguments that the rejection is improper

"obvious to try", pages 19-20, the Examiner's disagrees. As discussed in the paragraph above, MPEP 2144.05 indicates that it is well settled in the art to optimize among

overlapping ranges and to develop optimum or workable ranges. As to the argument

by applicant that the prior art does not provide the specific teaching that multilayer,

reactive, curtain coating at greater than 600 m/min and greater than 45% curtain solids

is ~~not~~ within the parameters of the prior art, page 20, the Examiner disagrees with

applicant's position. It is the optimization of the taught overlapping conditions that

provides the teaching of the claimed scope. One does not have to provide the actual

claimed scope before optimization can occur or "overlapping" would not be an issue.

As to the argument that even if the references could be combined as suggested, the results would be unpredictable with Clarke being directed to low solids coating, page 20-21, the Examiner disagrees. Applicant is making arguments solely as to how Clarke would be viewed, without taking into account the further teachings of Takahashi and Kustermann.

As to applicant's arguments that the statement of motivation of allowing for quicker and more efficient production establishing a long felt need, pages 21-22, the Examiner disagrees. Establishing long felt need requires a particular showing (see MPEP 716.04) that was not established or discussed in this response or in the previous declaration of Dr. Bauer. As to applicant's arguments that Yokota/'884 is directed to solving the problem with watery, low solids coating, at page 22, the Examiner disagrees, for the reasons discussed at paragraph 12 of the Feb. 21, 2007 Office Action. As to applicant's arguments as to the combination of the references and the declaration of Dr. Bauer, pages 22-23, the Examiner disagrees, for the reasons discussed at paragraph 12 of the Feb. 21, 2007 Office Action and for the reasons discussed above in this *Response to Arguments* section. In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, pages 23-24, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure,



such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971). Here, the combination of art from the prior art, as discussed at paragraph 12 of the Feb. 21, 2007 Office Action and for the reasons discussed above in this *Response to Arguments* section provide all the teachings of the art. As to the argument that the Examiner's argument would be improperly based on the argument that the components are found in the prior art and do not enable the subject matter of the present invention, pages 24-28, the Examiner disagrees for the reasons the art is combined as discussed at paragraph 12 of the Feb. 21, 2007 Office Action and for the reasons discussed above in this *Response to Arguments* section. The use of every feature as claimed is specifically provided and suggested by the combination of the art as discussed. Applicant argues the individual features of each reference alone that they do not enable the prior art, however, it is the combination of references that provides the teaching that would clearly indicate to one of ordinary skill in the art how to practice the invention.

As to the arguments with regard to claims 75 and 80, page 28, the Examiner notes that Takahashi, for example, notes that speed can conventionally be 1500 m/min, as discussed in the rejection above. As to the arguments with regard to claims 30, 81 and 82, page 28, the Examiner notes the discussion in the rejection above, as to the suggestion not to use an electrostatic field. Furthermore, the Examiner notes the 35 USC 112 rejection for new matter as to these claimed features.

*Conclusion*

16. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.


17. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Katherine A. Bareford whose telephone number is (571) 272-1413. The examiner can normally be reached on M-F(6:00-3:30) with the First Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Meeks can be reached on (571) 272-1423. The fax phone numbers for the organization where this application or proceeding is assigned are (571) 273-8300 for regular communications and for After Final communications.

Other inquiries can be directed to the Tech Center 1700 telephone number at (571) 272-1700.

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Furthermore, information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
KATHERINE BAREFORD  
PRIMARY EXAMINER